

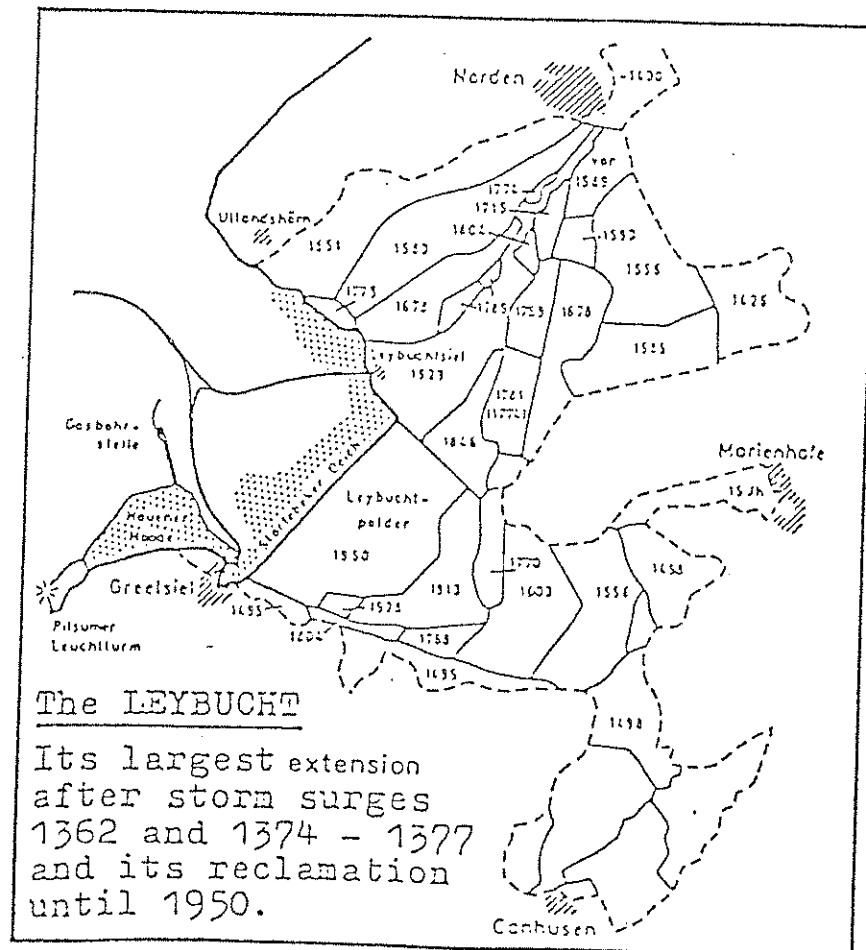
Coastal Protection

by H.-H. Thies

- Leybucht - Polders and their construction -
- Tidal gate and pumping stations -

THE LEYBUCHT

The Leybucht is the last of the bays on the East Frisian coast still open to the sea. It attained its greatest size of about 13,000 ha after the catastrophic storm surges of 1374/77. At that time, it extended as far as Norden, eastwards as far as Marienhofe and southwards to Canhusen. After the flooding, silting up immediately began and has continued up to the present day. As early as 1400, diking was begun, together with the reclaiming of high marsh areas.



- page 3 -

which are dredged every two years at great expense. This, however, only means a slight improvement for a short time.

About 11,000 ha of the Krummhörn area are drained into the Leybucht through a pumping station in Greetsiel, which has been operating since 1957. The two draining sluices, built in 1792 and 1888, are no longer usable, because of the considerable silting up of the Greetsiel tidal channel.

On the north side of the Leybucht, the draining sluice of the Leybuchtsiel, which was brought into operation in 1929, is also scarcely in working order because of the siltation of the Norden tidal channel. The Norden drainage association, with an area of approx. 24,000 ha, has to rely on the pumping station at the Leybuchtsiel, built in 1961, for its drainage.

About 1.5 km north of Hauener Hooge, a small artificial island for drilling was constructed in 1974, which at present produces ca. 35 million m³ of gas a year.

The purpose of the plan

The experience gained from the severe storm surges of 1962 and 1976, the rising sea level and also the height and the frequency of storm tides is necessitating the heightening and the strengthening of coastal protection works.

The main dikes in the Leybucht at present are 1.3 m to 1.8 m too low.

The shore protection measures in the Leybucht cannot be viewed in isolation from the following problems:

- preservation of the harbour, with a safe entrance, through a deep tidal channel and thereby preserving the character of Greetsiel itself,
 - a reliable drainage system of draining sluices and pumping stations in Greetsiel and Leybuchtsiel,
-

- page 5 -

unloading and mooring. The fishing vessels are able to reach the ship lock of Leysiel at any time. Locking can be carried out for eight hours after low tide.

The harbour of Greetsiel must be re-equipped for the new water level of about -1.5 m. On the eastside, a new quay is planned at a level of +0.2 m mean sea level - that is 1.6 m lower than the quay on the westside. The two closed drainage sluices are to be reopened and restored as a form of monument preservation. The harbour walls with the adjacent dikes are to be adapted to the new harbour design.

After these measures, the remaining Leybucht between Utlandshörn and Leysiel will have an area of about 3,000 ha. It belongs to zone I, the silent area, of the "National Park Wadden Sea of Lower Saxony". In future, disturbing factors, such as shipping, recreational activities, dredging of tidal channels with the placing of pipelines for dredge spoil and the installation of dredge spoil areas, will no longer exist.

The entire construction measures require about 740 ha of polder area, foreland and tidal flats:

Polder	approx. 180 ha
Saline marsh	approx. 130 ha
Foreland reclaimed by dredge spoil and tidal channels	approx. 70 ha
Tidal flats	approx. 360 ha

The total construction costs are estimated at DM 290 million 1992 prices. Completion is planned for 1997. The project will be carried out according to the statutory plan of 25-9-1985.

Village Restoration in Greetsiel

by B. Wiltfang

Greetsiel is an historic fishing harbour on the East Frisian coast which has saved many of its old buildings dating from former centuries.

Greetsiel, with its 2000 inhabitants, is an important supply centre for the neighbouring villages. Its main economic activities are fishing (28 cutters), tourist traffic and agriculture.

Greetsiel was built up with many different types of houses, which, nonetheless, form a picturesque whole around the sluice and the market-place and thus constitute an extraordinary monument. Since the individual buildings, however, were in a rather bad state of repair, the entire ensemble was threatened with collapse.

The village restoration project, which has now been completed, was aimed at counteracting this threatened decay of the village. It was focussed primarily on the restoration of public streets and public places using historic building materials.

Special care was taken in the restoration of details, such as fences, stairs and banisters etc. (with more than 50 individual measures being involved). Apart from public property, numerous private buildings with features typical of the village (fronts, windows, roofs etc.) were renovated with the aid of public grants.

An old 18th-century bakery was purchased and its antique equipment preserved for posterity. This bakery now operates as a tea-shop.

The landmarks of Greetsiel are the two 19th-century windmills that stand close together. Generous subsidies were granted for the preservation of these twin mills. One mill is still fully operational and grinds grain. It thus represents a particular attraction for visitors to the village.
